Agency for Healthcare Research and Quality
Advancing Excellence in Health Care

NATIONAL GUIDELINE CLEARINGHOUSE

General

Guideline Title

Management of acute atrial fibrillation and atrial flutter in non-pregnant hospitalized adults.

Bibliographic Source(s)

University of Michigan Health System. Management of acute atrial fibrillation and atrial flutter in non-pregnant hospitalized adults. Ann Arbor (MI): University of Michigan Health System; 2014 May. 26 p. [30 references]

Guideline Status

This is the current release of the guideline.

Recommendations

Major Recommendations

Note from the University of Michigan Health System (UMHS) and the National Guideline Clearinghouse (NGC): The following guidance was current as of May 2014. Because UMHS occasionally releases minor revisions to its guidance based on new information, users may wish to consult the original guideline document for the most current version.

Note from NGC: The following key points summarize the content of the guideline. Refer to the full text of the original guideline document for detailed information on each of the screening procedures.

The strength of recommendation (I-III) and levels of evidence (A-D) are defined at the end of the "Major Recommendations" field.

Key Points

Clinical Presentation

Patients presenting with palpitations, irregular pulse, chest pain, dyspnea, fatigue, lightheadedness, syncope, cardio-embolic disease and new or recurrent heart failure should be evaluated for atrial fibrillation/atrial flutter (AF/AFL). While AF may be asymptomatic and found incidentally, AFL is usually highly symptomatic.

Diagnosis

Electrocardiogram (ECG) is essential in the diagnosis of AF/AFL. The initial evaluation is summarized in Table 1 in the original guideline document and should include:

- Physical exam

- Laboratory evaluation: complete blood count (CBC), basic metabolic profile, magnesium, thyroid-stimulating hormone, and cardiac enzymes as indicated
- Imaging: chest X-ray, echocardiogram
- Continuous telemetry monitoring in the hospital

Treatment

Initial treatment of AF/AFL depends on hemodynamic stability.

Unstable AF/AFL (refer to Figure 1 in the original guideline document):

- Begin resuscitation and consider other conditions contributing to instability.
- If instability due to AF/AFL - immediate direct current cardioversion.

Stable AF/AFL (refer to Figure 2 in the original guideline document):

- For emergency department (ED) patients: Screen for early cardioversion in the ED (refer to Figure 4 in the original guideline document).
- Administer rate controlling agents as indicated (refer to Table 4 in the original guideline document) – *[I, B]*.
  - Electrophysiology (EP) consult for uncontrolled rate despite adequate trial of rate controlling agents.
- Consider the appropriateness of a rhythm control strategy (refer to Table 3 in the original guideline document) – *[I, B]*.
  - If rhythm control strategy is appropriate/desired, consult EP and start immediate anticoagulation (refer to Figure 3 in the original guideline document).
- Consider anticoagulation based on CHA_2DS_2-VAS_c score (refer to Table 2 and Figure 3 in the original guideline document) – *[I, A]*.
  - The choice of anticoagulant will depend on the patient's clinical circumstances and renal function (refer to Figure 3 in the original guideline document).
  - Obtain Neurology consult prior to initiation of anticoagulation for patients with recent ischemic stroke within the prior two weeks.
  - Patients with valvular disease and those requiring concomitant treatment with dual antiplatelet therapy should be anticoagulated with warfarin.
  - Target-specific oral anticoagulants are preferred over warfarin in many cases.

Definitions:

Levels of Evidence

A. Randomized controlled trials
B. Controlled trials, no randomization
C. Observational trials
D. Opinion of expert panel

Strength of Recommendation

I. Generally should be performed
II. May be reasonable to perform
III. Generally should not be performed

Clinical Algorithm(s)

The following algorithms are provided in the original guideline document:

- Acute management of UNSTABLE atrial fibrillation and atrial flutter (AF/AFL)
- Acute management of STABLE atrial fibrillation and atrial flutter with rapid ventricular response
- Management of anticoagulation therapy in atrial fibrillation and atrial flutter
- Emergency department screening for early cardioversion of atrial fibrillation and atrial flutter

An algorithm titled "Management of acute atrial fibrillation/flutter after thoracic surgery" is also provided in Appendix C in the original guideline document.

Scope

Disease/Condition(s)

- Atrial fibrillation
- Atrial flutter

Guideline Category

Diagnosis

Evaluation

Management

Screening

Treatment

Clinical Specialty

Cardiology

Critical Care

Emergency Medicine

Family Practice

Geriatrics

Internal Medicine

Thoracic Surgery

Intended Users

Advanced Practice Nurses

Emergency Medical Technicians/Paramedics

Hospitals

Nurses

Physician Assistants

Physicians

Guideline Objective(s)

- To provide an evidence-based blue print for the acute care of patients with atrial fibrillation (AF) and atrial flutter (AFL) at the University of Michigan Health System
- To assure consistent care delivery for patients with AF across the inpatient services

Target Population

Adult non-pregnant hospitalized patients with atrial fibrillation and atrial flutter

Note: These guidelines are applicable to all inpatients with notable exception of patients on the Cardiology, Cardiac Intensive Care or Cardiac Surgery Services.

Interventions and Practices Considered

Diagnosis/Evaluation

1. Assessment of signs and symptoms
2. Electrocardiogram (ECG)
3. Physical exam
4. Laboratory tests
5. Imaging (chest X-ray, echocardiogram)
6. Continuous telemetry monitoring

Treatment/Management

1. Resuscitation and consideration of other conditions contributing to instability
2. Direct current cardioversion
3. Rate-controlling agents (calcium channel blockers, beta-blockers, amiodarone, digoxin)
4. Electrophysiology (EP) consultation
5. Anticoagulation based on CHA_2DS_2-VASc score
6. Neurology consultation

Major Outcomes Considered

- Heart rate control
- Rhythm control
- Mortality rate
- Stroke rate
- Bleeding rate

Methodology

Methods Used to Collect/Select the Evidence

Searches of Electronic Databases

Description of Methods Used to Collect/Select the Evidence

The literature search for this guideline was conducted prospectively using the major keywords of "atrial fibrillation" or "atrial flutter." Results were limited to humans, and published in the English language, for dates ranging from January 2011 to March 2013 on Medline. There were no limits on age groups. Results were limited to guidelines, clinical trials, and cohort studies.

Additional key words included: rate control, rhythm control, procedures, established drug therapies, novel drug therapies, clinical classification systems/risk calculators, and post-operative.

The search was conducted in components each keyed to a specific causal link in a formal problem structure (available upon request). The search was supplemented with very recent clinical trials known to expert members of the panel. The search was a single cycle.

Within the Cochrane systematic reviews, 35 reviews were found for the terms "atrial fibrillation" and "atrial flutter." Within the National Guideline Clearinghouse, these terms returned 13 guidelines.

Number of Source Documents

Not stated

Methods Used to Assess the Quality and Strength of the Evidence

Weighting According to a Rating Scheme (Scheme Given)

Rating Scheme for the Strength of the Evidence

Level of Evidence

A. Randomized controlled trials
B. Controlled trials, no randomization
C. Observational trials
D. Opinion of expert panel

Methods Used to Analyze the Evidence

Systematic Review

Description of the Methods Used to Analyze the Evidence

Not stated

Methods Used to Formulate the Recommendations

Expert Consensus

Description of Methods Used to Formulate the Recommendations

Conclusions were based on prospective randomized clinical trials if available, to the exclusion of other data; if randomized controlled trials were not available, observational studies were admitted to consideration. If no such data were available for a given link in the problem formulation, expert opinion was used to estimate effect size.

Rating Scheme for the Strength of the Recommendations

Strength of Recommendation

I. Generally should be performed
II. May be reasonable to perform
III. Generally should not be performed

Cost Analysis

A formal cost analysis was not performed and published analyses were not reviewed.

Method of Guideline Validation

Internal Peer Review

Description of Method of Guideline Validation

Drafts of this guideline were reviewed in clinical conferences and by distribution for comment within departments and divisions of the University of Michigan Health System to which the content is most relevant: Emergency Medicine, General Medicine, Infectious Disease, Neurosurgery, Cardiology, Cardiac Surgery, Stroke, Pharmacy Services, and Thoracic Surgery. Medication recommendations were reviewed by the Pharmacy and Therapeutics Committee. The final version was endorsed by the Clinical Practice Committee of the University of Michigan Faculty Group Practice and the Executive Committee for Clinical Affairs of the University of Michigan Hospitals and Health Centers.

Evidence Supporting the Recommendations

Type of Evidence Supporting the Recommendations

The type of supporting evidence is identified and graded for selected recommendations (see the "Major Recommendations" field).

Conclusions were based on prospective randomized clinical trials (RCTs) if available, to the exclusion of other data; if RCTs were not available, observational studies were admitted to consideration. If no such data were available for a given link in the problem formulation, expert opinion was used to estimate effect size.

Benefits/Harms of Implementing the Guideline Recommendations

Potential Benefits

It is hoped that standardization of care will result in improved patient outcomes, shorter length of hospital stay, lower readmission rates, and overall cost savings for the system.

Potential Harms

- Calcium channel blockers can cause hypotension and atrioventricular (AV) nodal block.
- Beta-blockers can cause hypotension and AV nodal block. Use metoprolol with caution in patients with decompensated heart failure.
- Amiodarone can cause hypotension (when given intravenously), pulmonary toxicity (so patients with severe lung disease are poor candidates for long-term administration), hepatic toxicity, hypo/hyperthyroidism, and ocular side effects.
- Digoxin can cause AV nodal block and digoxin toxicity.
- Anticoagulants are associated with risk of bleeding.

Refer to Table 4 and Appendices A and B in the original guideline document for more information on specific drugs.

Contraindications

Contraindications

- Drugs contraindicated in patients with accessory pathways include digoxin, and non-dihydropyridine calcium channel antagonists (e.g., verapamil, diltiazem), which slow conduction across the atrioventricular (AV) node, and can result in paradoxical acceleration of the ventricular rate, hypotension, or ventricular fibrillation.
- Avoid metoprolol in patients with bronchoconstriction or emphysema. Avoid esmolol and propranolol in patients with acute or active airway obstruction/bronchoconstriction or decompensated heart failure.

- Procainamide should be held for systolic blood pressure <90 mmHg, and is contraindicated in patient with renal failure (creatinine clearance <30), severe liver disease, lupus, or baseline hypotension.

Table 4 and Appendix A in the original guideline document provide a review of drugs used in atrial flutter/acute atrial fibrillation and include additional information about contraindications.

Qualifying Statements

Qualifying Statements

Qualifying Statements

These guidelines should not be construed as including all proper methods of care or excluding other acceptable methods of care reasonably directed to obtaining the same results. The ultimate judgment regarding any specific clinical procedure or treatment must be made by the physician in light of the circumstances presented by the patient.

Implementation of the Guideline

Description of Implementation Strategy

An implementation strategy was not provided.

Implementation Tools

Clinical Algorithm

For information about availability, see the *Availability of Companion Documents* and *Patient Resources* fields below.

Institute of Medicine (IOM) National Healthcare Quality Report Categories

IOM Care Need

Getting Better

IOM Domain

Effectiveness

Timeliness

Identifying Information and Availability

Bibliographic Source(s)

University of Michigan Health System. Management of acute atrial fibrillation and atrial flutter in non-pregnant hospitalized adults. Ann Arbor (MI): University of Michigan Health System; 2014 May. 26 p. [30 references]

Adaptation

Not applicable: The guideline was not adapted from another source.

Date Released

2014 May

Guideline Developer(s)

University of Michigan Health System - Academic Institution

Source(s) of Funding

University of Michigan Health System

Guideline Committee

Atrial Fibrillation Guideline Team

Composition of Group That Authored the Guideline

Team Leaders: Jeffrey M. Rohde, MD, Internal Medicine; Thomas C. Crawford, MD, Cardiology

Team Members: Sarah E. Hartley, MD, Internal Medicine; Sarah Hanigan, PharmD, Pharmacy Services; Jules Lin, MD, Thoracic Surgery; Lewis B. Morgenstern, MD, Neurology (Stroke); F. Jacob Seagull, PhD, Medical Education; David M. Somand, MD, Emergency Medicine; David H. Wesorick, MD, Internal Medicine; James B. Froehlich, MD (*Consultant*), Cardiology

Inpatient Clinical Guidelines Oversight: Sarah E. Hartley, MD; David H. Wesorick, MD; F. Jacob Seagull, PhD

Financial Disclosures/Conflicts of Interest

The University of Michigan Health System endorses the Guidelines of the Association of American Medical Colleges and the Standards of the Accreditation Council for Continuing Medical Education that the individuals who present educational activities disclose significant relationships with commercial companies whose products or services are discussed. Disclosure of a relationship is not intended to suggest bias in the information presented, but is made to provide readers with information that might be of potential importance to their evaluation of the information.

No team member reported a conflict of interest.

Guideline Status

This is the current release of the guideline.

Guideline Availability

Electronic copies: Available from the University of Michigan Health System Web site .

Availability of Companion Documents

None available

Patient Resources

None available

NGC Status

This NGC summary was completed by ECRI Institute on June 29, 2014.

Copyright Statement

Disclaimer

NGC Disclaimer